Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Claim 1 (currently amended): A multiple compression coding method, comprising:

feeding ~~in which~~ an input signal ~~feeds~~ in parallel to an apparatus comprising a plurality of coders, each including a succession of functional units with a view to compression coding of said signal by each coder, wherein each coder comprises a different combination of functional units; ~~, wherein the method comprises the following steps:~~

a) identifying the functional units forming each coder and one or more functions implemented by each unit;

b) marking functions that are common from one coder to another; [[and]]

c) executing said common functions only one time for the input signal ~~once and for all~~ for at least some of the coders in a common calculation module; and

d) producing and feeding a coded output signal from the apparatus based at least in part on the common functions.

Claim 2 (previously presented): A method according to claim 1, wherein said calculation module comprises at least one functional unit of one of the coders.

Claim 3 (previously presented): A method according to claim 2, wherein, for each function executed in step c), at least one functional unit is used of a coder selected from said plurality of coders and the functional unit of said coder selected is adapted to deliver partial results to the other coders, for efficient coding by said other coders verifying an optimum criterion between complexity and coding quality.

Claim 4 (previously presented): A method according to claim 3, the coders being liable to operate at respective different bit rates, wherein the selected coder is the coder with the lowest bit rate and the results obtained after execution of the function in step c) with parameters specific to the selected coder are adapted to the bit rates of at least some of the other coders by a focused parameter search for at least some of the other modes up to the coder with the highest bit rate.

Claim 5 (previously presented): A method according to claim 3, the coders being adapted to operate at respective different bit rates, wherein the coder selected is the coder with the highest bit rate and the results obtained after execution of the function in step c) with parameters specific to the selected coder are adapted to the bit rates of at least some of the other coders by a focused parameter search for at least some of the other modes up to the coder with the lowest bit rate.

Claim 6 (previously presented): A method according to claim 4, wherein the functional unit of a coder operating at a given bit rate is used as the calculation module for that bit rate and at least some of the parameters specific to that coder are progressively adapted:

· up to the coder with the highest bit rate by focused searching; and

· up to the coder with the lowest bit rate by focused searching.

Claim 7 (previously presented): A method according to claim 1, wherein the functional units of the various coders are arranged in a trellis with a plurality of possible paths in the trellis, wherein each path in the trellis is defined by a combination of operating modes of the functional units and each functional unit feeds a plurality of possible variants of the next functional unit.

Claim 8 (previously presented): A method according to claim 7, wherein a partial selection module is provided after each coding step conducted by one or more functional units capable of selecting the results supplied by one or more of those functional units for subsequent coding steps.

Claim 9 (previously presented): A method according to claim 7, the functional units being liable to operate at respective different bit rates using respective parameters specific to said bit rates, wherein, for a given functional unit, the path selected in the trellis is that passing through the lowest bit rate functional unit and the results obtained from said lowest bit rate functional unit are adapted to the bit rates of at least some of the other functional units by a focused parameter search for at least some of the other functional units up to the highest bit rate functional unit.

Claim 10 (previously presented): A method according to claim 7, the functional units being liable to operate at respective different bit rates using respective parameters specific to said bit rates, wherein, for a given functional unit, the path selected in the trellis is that passing through the highest bit rate functional unit and the results obtained from said highest bit rate functional unit are adapted to the bit rates of at least some of the other functional units by a focused parameter search for at least some of the other functional units up to the lowest bit rate functional unit.

Claim 11 (previously presented): A method according to claim 9, wherein, for a given bit rate associated with the parameters of a functional unit of a coder, the functional unit operating at said given bit rate is used as the calculation module and at least some of the parameters specific to that functional unit are progressively adapted:

· up to the functional unit capable of operating at the lowest bit rate by focused searching; and

· up to the functional unit capable of operating at the highest bit rate by focused searching.

Claim 12 (previously presented): A method according to claim 1, wherein said calculation module is independent of said coders and is adapted to redistribute results obtained in step c) to all the coders.

Claim 13 (previously presented): A method according to claim 12, wherein the independent module and the functional unit or units of at least one of the coders are adapted to exchange results obtained in step c) with each other and the calculation module is adapted to effect adaptation transcoding between functional units of different coders.

Claim 14 (previously presented): A method according to claim 12, wherein the independent module includes a functional unit for performing operations of a coding process and an adaptation transcoding functional unit.

Claim 15 (previously presented): A method according to claim 1, wherein the coders in parallel are adapted to operate multimode coding and an *a posteriori* selection module is provided capable of selecting one of the coders.

Claim 16 (previously presented): A method according to claim 15, wherein a partial selection module is provided that is independent of the coders and able to select one or more coders after each coding step conducted by one or more functional units.

Claim 17 (previously presented): A method according to claim 1, wherein the coders are of the transform type and the calculation module includes a bit assignment functional unit shared between all the coders, each bit assignment effected for one coder being followed by an adaptation to that coder, in particular as a function of its bit rate.

Claim 18 (previously presented): A method according to claim 17, wherein the method further includes a quantization step the results whereof are supplied to all the coders.

Claim 19 (previously presented): A method according to claim 18, wherein it further includes steps common to all the coders including:

- a time-frequency transform;
- detection of voicing in the input signal;
- detection of tonality;
- determination of a masking curve; and
- spectral envelope coding.

Claim 20 (previously presented): A method according to claim 17, wherein the coders effect sub-band and the method further includes steps common to all the coders including:

- application of a bank of analysis filters;
- determination of scaling factors;
- spectral transform calculation; and
- determination of masking thresholds in accordance with a psycho-acoustic model.

Claim 21 (previously presented): A method according to claim 1, wherein the coders are of the analysis by synthesis type and the method includes steps common to all the coders including:

· preprocessing;

· linear prediction coefficient analysis;

· weighted input signal calculation; and

· quantization for at least some of the parameters.

Claim 22 (previously presented): A method according to claim 21, wherein the partial selection module is used after a split vector quantization step for short-term parameters.

Claim 23 (previously presented): A method according to claim 21, wherein the partial selection module is used after a shared open loop long-term parameter search step.

Claim 24 (currently amended): A computer program product, comprising computer readable medium storing a computer program product in memory, said computer readable medium including instructions for implementing preparatory steps of a transcoding method, said method comprising: ~~in which an input signal fees~~

feeding an input signal in parallel to an apparatus comprising a plurality of coders each including a succession of functional units for ~~with a view to~~ compression coding of said signal by each coder, wherein each coder comprises a different combination of functional units,

said preparatory steps further including:

a) identifying the functional units forming each coder and one or more functions implemented by each unit;

b) marking functions that are common from one coder to another; [[and]]

c) executing said common functions only one time for the input signal ~~once and for all~~ for at least some of the coders in a common calculation module; and

d) producing and feeding a coded output signal from the apparatus based at least in part on the common functions.

Claim 25 (currently amended): A system for assisting multiple compression coding, comprising:

an apparatus comprising ~~in which an input signal feeds in parallel~~ a plurality of coders that are fed in parallel an input signal, each coder including a succession of functional units, for the purposes of compression coding of said signal by each coder; ~~, wherein it includes~~

a memory adapted to store instructions of a software product for implementing preparatory steps of a transcoding method in which an input signal feeds in parallel a plurality of coders each including a succession of functional units with a view to compression coding of said signal by each coder, wherein each coder comprises a different combination of functional units,

said preparatory steps including:

a) identifying the functional units forming each coder and one or more functions implemented by each unit;

b) marking functions that are common from one coder to another; [[and]]

c) executing said common functions only one time for the input signal ~~once and for all~~ for at least some of the coders in a common calculation module; and

d) producing and feeding a coded output signal from the apparatus based at least in part on the common functions.

Claim 26 (previously presented): A system according to claim 25, wherein it further includes said independent calculation module for implementing said preparatory steps.

Claim 27 (new): A multiple compression coding method, comprising:

feeding an input signal in parallel to an apparatus comprising a plurality of coders, each including a succession of functional units with a view to compression coding of said signal by each coder, wherein each coder comprises a different combination of functional units;

a) identifying the functional units forming each coder and one or more functions implemented by each unit;

b) marking functions that are equivalent from one coder to another;

c) selecting a function executed by a given coder amongst the functions that are equivalent, and executing said functions with parameters related to the given coder only one time for the input signal for at least some of the coders in a common calculation module;

d) adapting a result obtained from the execution of the function in step c) for a use in at least a part of the plurality of coders; and

e) producing and feeding a coded output signal from the apparatus based at least in part on the common functions.